DOCUMENT RESUME

ED 316 028 FL 018 340

AUTHOR Belcher, Diane D.
TITLE Is There an Audience in the Advanced EAP Composition Class?
PUB DATE 89
NOTE 35p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Information Analyses (070) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Advanced Courses; *Audience Response; *English (Second Language); *English for Academic Purposes; Higher Education; *Peer Evaluation; Questionnaires; *Teacher Response; Teacher Role; *Writing (Composition)

ABSTRACT

The composition teacher's role in responding to students papers is especially problematic when students are advanced English-as-a-Second-Language students at the graduate level. With limited knowledge of a student's field of study, the teacher can not simulate the audience the student needs to address. While evaluation by peers in the same field seems feasible, experience suggests little constructive criticism may result. Teachers of English for Academic Purposes (EAP) should not hesitate to assign papers on intellectually engaging topics. As experienced readers of academic prose, teachers can represent the academic interpretive community. However, while composition teachers may assist in understanding many conventions of academic texts, much content will be beyond their expertise. In this case, teachers should attempt to teach their students to act as peer reviewers and consult them as needed. Student-informed teacher response may create more realistic audiences in EAP classes and also enable teachers to teach what they know best, composing strategies, in contexts that are relevant to the needs and interests of advanced students. Appended materials include a questionnaire used in surveying content-area faculty about EAP compositions, peer review forms, and two sample student essays. (Author/MSE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED316028

Diane D. Belcher
510 E. Clearview Avenue (home)
Worthington, Ohio 43085
614-292-6360 (office), 614-436-8697 (home)

Is There an Audience in the Advanced EAP Composition Class?

Diane D. Belcher

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
D. Belcher
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Abstract

The composition teacher's role as respondent to student papers is especially problematic when a class is composed of advanced ESL students at the graduate level. With limited or no knowledge of the students' fields of study, the teacher cannot readily simulate the audiences that the students are most in need of learning to address. Peer review utilizing students in the same disciplines as respondents to each others' papers would seem a feasible solution to this "teacher-as-audience" (Newkirk, 1984a) problem, but an initiatory peer critiquing exercise with a multi-section EAP composition course for graduate students yielded few constructively critical responses that proved useful to the student/authors and their teachers.

Despite their knowledge base, EAP composition teachers should not be hesitant to assign papers on topics that

FL018340

BEST COPY AVAILABLE

intellectually engage graduate students. As experienced readers of academic prose, which recent research tells us does have common linguistic and rhetorical features, teachers can serve as representatives of the academic interpretive community, a community that their composition students are not likely to belong to according to the L1 literature and a comparison of L2 students' and their teacher's responses to student papers. Nevertheless, while composition teachers may well be able to "demystify" (Bizzell, 1982) many of the conventions of academic texts, so many mysteries will remain beyond the reach of their expertise that they should attempt to educate their students to act as peer reviewers and consult them as potentially valuable informants. Such attempts to enable student-informed teacher response may not only eventually lead to the creation of more realistic audiences in EAP classes but also enable the teachers to teach what they know best, composing strategies, in contexts that are relevant both to the needs and interests of advanced EAP students.

Is There an Audience in the Advanced EAP Composition Class?[1]

For the past two decades composition teachers have been advised to discourage their students from thinking of them as their audience (Newkirk, 1984a, 1984b). Elbow (1973), Macrorie (1970), Moffett (1968), and more recently L2 composition specialists such as Zamel (1982) have all reasoned essentially that students are more likely to produce authentic discourse in a composition class if they envision a real audience interested in their writing as communication rather than if they merely write for their teachers, who are naturally concerned with the evaluation of writing, hence a rather unnatural and certainly narrow audience. Researchers who have compared experienced and inexperienced academic (Shaughnessy, 1977; Sommers, 1980) and nonacademic (Odell, 1985) writers have in fact found that the experienced writers are especially adept at mentally constructing an audience for their writing. In order to encourage inexperienced writers to write for someone other than their teachers, it has been frequently recommended that students work collaboratively in the composition classroom, serving as each other's respondents (e.g., in L1 Bruffee, 1973; in L2 again

---

[1] Apologies to Stanley Fish (1980). An earlier version of this essay, originally titled "Using Peer Review in the Advanced EAP Composition Classroom," was presented at the 22nd Annual Convention of TESOL, Chicago, March 1988.

Zamel, 1982). Moffett (1968) has even maintained that peers can be more effective respondents than teachers (that is, more likely to effect improvement in student writing). Peer work proponents have not, however, recommended that peers completely replace their teachers as respondents to student writing. Nor is it likely that many students have ever seriously believed that they did not ultimately have to please their grade-wielding (Moffett, 1968) teachers. Because of this unlikelihood, it would appear to be especially important that we composition teachers be able to persuade our students that we can, to a large extent, simulate the real audiences we ask them to address.

Few studies have attempted to determine how well composition teachers are actually able to be like "real" audiences. The results of Newkirk's (1984a) research are not encouraging. Newkirk found that the group of L1 composition teachers he surveyed was not able to consistently predict the response of students to fellow students' essays. If teachers cannot anticipate the response of this audience, which they should be fairly well acquainted with, Newkirk wonders how they can foresee the response of the less familiar audiences they often invite their students to write for. In another very different kind of study, McDonald (1987), after analyzing articles in psychology and literature journals and finding quite different "axiomatics" employed in them, concluded that much of what has been written about the composing process by composition theorists may only be appropriate for the humanities model, specifically the type of

writing traditionally done in composition and literature classes. In other words, McDonald suggests that the process approach in its privileging of individual expression and innovation ignores the very different discourse goals of non-humanities disciplinary communities. Advanced ESL composition students, who frequently are graduate students, might well agree with both McDonald and Newkirk in thinking that their writing teachers are ignorant of the audiences that they will most often have to address, that they are unable to respond as, for instance, a welding engineer or a molecular geneticist might.

The problem of teacher-as-audience (Newkirk, 1984a) has recently been intensified by the English for Specific Purposes movement in L2 composition, which like the writing-across-the-curriculum movement in L1 composition advocates a field-specific approach to writing assignments. Ostler's survey of ESL student needs (1980), Horowitz's analysis of faculty requirements (1986), and Swales' appraisal of the implications for nonnative speakers of the increasingly English-only published dialogue of their professions (1987) all urgently speak for the necessity to prepare ESL composition students for entrance into their academic, disciplinary communities. There is much to be said, too, in terms of relevance and motivation, for allowing students to address the content-area topics that most interest them. Alptekin has pointed out that "given the fact that the intrumental motives of foreign students are often accompanied by an urgency to master the target language in order to proceed with

their academic studies, there is no reason why educators should not treat these orientations as effective determinants in target language achievement" (1981: 277). Not only may students feel more motivated to perform well in their composition classes if invited to write on topics from their fields, but the quality of their writing may also improve. In a study involving 105 non-native graduate students asked to respond to both a general and a field-specific topic, Tedick (1988) found that the holistic scores for the field-specific papers were consistently higher. Although there were actually more errors in the field-specific essays, those composed by the intermediate- and advanced-level students also contained longer, more syntactically complex T-units. Thus, topics from their fields of study may encourage or even force more advanced students to take risks in their writing that they might not otherwise take. Yet, assuming that students are well served by an ESP approach in their writing classes, one may wonder how well equipped ESL teachers are to respond to field-specific papers. Can they be the audience that their students need? It is one thing, for example, for composition teachers to imagine that they are students or administrators being addressed in a paper comparing the relative merits of the quarter and semester systems, but it is quite another for them to imagine that they are graduate students in molecular genetics being addressed in a paper on DNA sequencing. How much can an ESL teacher help a writer of a paper like the latter? Can s/he even locate the weaknesses in such a paper? And if s/he can,

what constructive advice can s/he give? Even something as seemingly simple to respond to as definite/indefinite article usage may be extremely problematic for the composition teacher who does not know whether the terms the student uses are count or noncount nouns. (Does the noun **deoxyribose** require an article?)

One solution to this teacher-as-audience problem is to solicit help from content-area teachers (Shih, 1986); however, if the composition class consists of students with different majors or intended majors, this can be extremely difficult to accomplish. The chances of finding professors in every student's field who would be willing to work with the composition teacher are probably not great. Another approach is to ask the students to contact a faculty member that they know fairly well. I myself have tried this with a class of 15 ESL graduate students. Three of them actually found professors willing to act as respondents to their research papers. These professors filled out a questionnaire (see appendix A) that I devised to guide their response to the papers. The feedback they provided was very useful both to me and to the three students. But only three students received this help. What was most surprising to me in my effort to enlist faculty help was my students' aversion to the entire enterprise. They insisted that neither they nor I should bother their content-area teachers, that their professors were too busy with important research projects. In addition, some students remarked that it would be too impolite and embarrassing

to show a working draft of a paper to a professor. In all probability their insecurity as nonnative speakers fairly new to an American university (all were in their first year of graduate study) made them loath to call a respected professor's attention to problems they might be having in an English class. I know of three other ESL teachers who have since made the same attempt I did with a similar lack of luck. Students' pride and sense of intimidation are difficult obstacles to overcome.[2]

Because of the difficulty of using faculty as respondents, I decided to attempt a peer approach to reader feedback. My reasoning was that students would be more comfortable with their peers than they were with the prospect of working with status superiors. My approach consisted of matching ESL students in the same discipline to act as respondents to each others' papers. Such pairing up is difficult to do in the average composition class, but I was able to work with a multi-section course, an advanced EAP composition course for graduate students consisting

---

[2] Spack (1988) has argued that teachers in the disciplines are best qualified to teach writing in the disciplines. However, since very little research has been done in this area, i.e., the effectiveness of content course instructors as writing teachers, we lack assurance of the instructors' willingness and ability to furnish the guidance that NNSs need to enter their academic discourse communities. We do know that content courses , unlike composition courses, usually only require final drafts of assigned papers and that the students are likely to receive only after-the-fact feedback from their teachers. Several directors of writing-across-the-curriculum programs who participated in a panel, "Writing Against the Curriculum," at the ~~most recent~~ 39th meeting of the Conference on College Composition and Communication (St. Louis, March, 1988) have become quite pessimistic about attempts to convince faculty of the importance of fostering student writing in the disciplines.

of five sections (60 students). With such a large pool of students, I was able to pair people fairly closely, according to discipline. As I did for the faculty respondents, I composed a questionnaire to guide the students' responses (see appendix B). I deliberately steered the students away from comments on language use, that is, away from peer editing or correcting (as in Witbeck, 1976). My aim was not to cast students in the role of language experts, but to encourage them to speak as people knowledgeable in their chosen content areas. My hope was that they could help their composition teachers see how a specialist audience would respond to discipline-specific student writing, in this case an evaluative comparison of one or more theories, approaches, or instruments from the students' fields of study.

The results were disappointing. Out of 60 critiques, it seemed to me that only 6 could be helpful to the composition teachers. The rest were either uncritical or too vague in their criticism to facilitate revision. Perhaps the student respondents were just being polite or were hesitant to be critical of a fellow student in their own field out of a sense of camaraderie. Or perhaps they truly felt there was nothing to be critical of. One of the complaints about the use of peer feedback in composition classes is that it is likely to be too uncritical (Horowitz, 1986). Others do not identify the quality of the criticism as a problem; they value peer work for the needed emotional support it provides in the classroom (Gebhardt, 1980; Zamel, 1987). In any case, the teachers of the five

sections of advanced composition that participated in my peer feedback venture did not feel that their problem of competently responding to field-specific writing was solved by the cross-classroom critiques.[3] Yet, the teachers all felt that the peer response project was worthwhile in that it gave the students another perspective on their assignment and helped them rethink their own response to it.

Of the 30 written student reactions to the peer review project, 25 students spoke favorably of it, but all 25 had reservations. What the students appreciated about the experience was much like what their teachers valued. The students appreciated having the chance to see how another student handled the same assignment they were grappling with, especially since the student was in the same field. They also liked the questionnaire, because it gave them some criteria to keep in mind for their own papers. One student even mentioned that he liked the fact that fellow graduate students would read the papers because then student/authors would be less likely to "cheat" their teachers. In fact, peer reviewers of manuscript submissions and grant proposals in the professions serve this very function: they act as gatekeepers, shielding fellow professionals from sham knowledge claims (Mitroff & Chubin,1979)

---

[3] This problem of responding exists even for field-specific assignments that supposedly address a lay audience because a teacher's and a student's sense of what constitutes a lay audience may substantially differ. The student may assume that all people understand elementary physics, while the teacher herself may not.

While only one of the students participating in the peer critiquing project expressed any appreciation of this function of the student peer review, others did mention that they liked having the opportunity to receive feedback from fellow graduate students in their own fields. What they disliked was the actual feedback that they received. Some lamented the lack of specific, useful feedback, complaining that their papers had not been taken seriously enough, i.e., that their compositions had been treated as just another English paper. Those who received negative responses questioned whether their respondents were advanced enough in the field to be competent judges or whether the students were in exactly the right area--not just welding engineering but arc welding engineering. Some of these students may well fit into Berkenkotter's (1984) category of students unable to accept any challenge to their authority over their text. The students in my project who were the most critical of the peer review process insisted that students at their own level of English proficiency should not be allowed to critique them. These students may be right to question whether people without native speaker intuitions should comment on their writing. Gaies (1985), who is generally very positive about peer involvement in ESL classes, has noted that peer work may be least valuable for open-ended tasks such as composing, the complexity of which is so great that it calls for a kind of monitoring that even the most advanced students in an ESL class may not be able

to do well.[4] However, I had tried, through my questionnaire, to guide student comments away from language use. This is actually not easy to accomplish. ESL teachers so often comment on language errors that students are likely to take this as a model for their own response. They may also feel, as the L1 students in Newkirk's study (1984b) did, that responding to grammatical errors is a more objective way of critiquing writing than commenting on such aspects as topic choice or development.

The implications of my peer review project are not clearcut. The small number of critical and focused peer responses in this study lends support to Horowitz's criticism of the use of peer response in the ESL composition classroom. One of the few rigorous empirical studies of ESL peer response to writing assignments to date, Partridge's 1981 study, also calls into question the value of ESL peer response. Using holistic raters to evaluate student revisions informed by either teacher or peer response, Partridge found that essays were more likely to show improvement as a result of teacher than student feedback. Nevertheless, my own peer review venture did yield a few critical peer responses that put the teachers' ability to adequately respond to field-specific assignments in serious doubt. One geodetic science student, for example, questioned the choice and handling of the topic in a fellow geodesist's essay.

---

[4] Gaies' observation seems especially cogent if we consider how difficult it is even for teachers to diagnose the problems of and suggest remedies for any student writing, discipline-specific or otherwise.

The paper argued for the superiority of one type of map making over another. The student reviewer claimed that the two map-making methods were actually always used together in a complementary way, and that to attempt to argue the superiority of one was pointless. In fact, the assignment, an evaluative comparison, had encouraged, but not required, the author to take this approach. How could the teacher have known that the student's simplistic evaluative approach was inappropriate for the two map-making methods presented? This type of critical peer comment should certainly give us pause. How often do our students write papers for us that would meet with disapproval in their disciplinary, or, to use Fish's term (1980), interpretive, communities? How much of a handicap for us as EAP composition teachers is our ignorance of our students' fields?

There is no question but that our ignorance of various disciplines poses a problem for us as respondents to field-specific papers; however, it is probably not so serious a problem that we should shy away from such assignments. My main reason for asserting this is that while our students are fledgling members of their respective disciplinary communities, we are members in good standing of the academic community at large. As educated adult readers and writers of English, we know a great deal more about the conventions of academic English discourse than our students do and there is reason to believe that a number of these conventions may actually be pan-disciplinary. Although McDonald's study has revealed apparently significant differences,

other recent research on the discourse of specific disciplines suggests that there are underlying similarities in all academic writing. Students of scientific discourse in particular have argued that its rhetorical strategies are really not so distant from those of the more overtly polemical prose of other fields; that is, there is more persuasion involved in the scientific presentation of facts than meets the eye (Law & Williams, 1982; Weimer, 1977; Yearley, 1985). Toulmin (1979) has analyzed reasoning across disciplines and discovered common components: common types of claims, grounds, backing and modal qualifiers. In my own analysis of the review literature of various fields I have found much evidence of a shared body of organizing principles, criteria, and evaluative language (Belcher, 1988). Thus, we are beginning to identify the common elements of academic rhetoric.

The few faculty responses I have received for my own students' papers indicate that we composition teachers may have more in common with content area instructors than we think we do or than our students may lead us to believe. One of my students, a master's candidate in economics, insisted that his comparison of three economic models need only be descriptive. No student at his level in his department would be able or required to do more, he argued. One of his economics professors commented on the paper that it lacked the analysis he would expect of a graduate economics student. Another student, in food science and nutrition, had what I perceived as an audience problem--an essay

too basic for her colleagues, with terminology too sophisticated for general readers. The student refused to acknowledge the problem until her professor responded to the paper by remarking that in an introductory survey for a lay audience such as hers, one would certainly need to define the technical terms used. He hoped that she would try something more ambitious next time. I do not mean to suggest that my students were attempting to be deceptive about the discourse requirements in their fields. They may honestly not have known them. What is of greater relevance to the issue of teacher versus peer response is the fact that their composition teacher's assessment of their writing was closer than the students' own to that of their content area teachers.

Several L1 composition studies have revealed a wide gulf between teacher and student perception of student writing. Flynn (1982, 1984) found that she and her own students held disturbingly (to her, as a peer critiquing proponent) divergent views of the same student papers. One essay which Flynn considered incoherent and at least partially plagiarized, with much unassimilated material from sources, her students liked a great deal. They judged it to be convincing in its use of evidence, although they could not agree on what they were being convinced of. Newkirk's teacher/peer response studies (1984a, 1984b) also have revealed major discrepancies. Student writing that struck composition teachers as "simple" seemed "really complex" from the peer vantage point. Newkirk posits that when

students identify with a peer's topic, they mentally supply the details and transitions that teachers perceive to be missing in the student's essay. Perceptions of originality differ, too. Newkirk found that a student essay comparing relationships with friends and family to positions on a baseball team was highly esteemed by student respondents, who admired its imaginativeness. Teachers were less impressed. To them, the student's use of the metaphor was a means of avoiding real analysis and thought. Thus, both Newkirk's and Flynn's studies place students and teachers in quite separate and distant interpretive communities.

It should not be surprising to find that L2 composition students and their teachers also comprise distinct interpretive communities, especially given the fact that they are likely to come from very different rhetorical backgrounds (for some recent research on contrastive rhetoric see Hinds, 1987 and Eggington, 1987). In order to gauge my own distance as a reader/respondent of student writing from my L2 advanced composition students, I presented eleven of my students with two essays from another class at the same level. These papers, "DNA Sequencing" and "Mineral Processing Equipment" (see appendices C & D), are both evaluative comparison essays (each one a third draft) on topics in the authors' content areas. The essays are, I feel, clearly of unequal merit. Each exhibits an organizing principle familiar to many composition teachers: the divided, also known as whole-to-whole or block, pattern and the alternating, or part-to-part, pattern. The alternating comparison, "DNA Sequencing," is

deftly organized to show the advantages of one sequencing method over the others, with respect to expense, efficiency, etc. In the divided comparison, "Mineral Processing Equipment," on the other hand, the overall organization seems random because there is little consistency in the order and amount of information given for each item compared. The recommendation in the conclusion of this essay comes as a complete surprise due to the author's failure to provide criteria earlier in the essay to help the reader evaluate the equipment. The recommended equipment is pronounced best for undergraduates for no apparent reason at all.

Nine out of the eleven students who responded to these two compositions disagreed with my undisclosed appraisal of them. They preferred "Mineral Processing Equipment" for a number of reasons. To them it was the easier essay to read. The liked its "clear" organization and straightforward conclusion. "DNA Sequencing" was judged to be too complicated, with a conclusion that left some students wondering which method really was best. In their dislike for the alternating pattern my graduate ESL students were similar to Newkirk's (1984b) L1 freshman composition students who complained about "back-and-forth" comparison. In the eyes of both groups it is too chaotic a pattern. Both groups reveal a lack of familiarity with and appreciation of a fairly common rhetorical strategy in Anglo-American academic prose (for discussions of common patterns of comparison organization see American freshman composition

textbooks such as Fahnestock & Secor, 1982, and Memring & O'Hare, 1984). Of course, another study might find other L1 or L2 students responding differently to divided and alternating comparisons. The point is that we have little or no reason to assume that students will respond to student writing the same way that their composition teachers do. While my comparison of peer and teacher response to student writing, like my peer critique project, appears to reassuringly point to composition teachers as better qualified than students to guide their students' production of academic texts, it has also revealed, again, the limitations of teacher response to field-specific assignments. Shortly after soliciting student response to the "DNA Sequencing" and "Mineral Processing" papers, two of the students who participated in this exercise came to me with serious misgivings about the DNA essay. Their complaints were those that only graduate students in molecular genetics, which they were, could make. These students were not bothered by the organization per se of this comparison of four DNA sequencing methods but by the four methods themselves. The students argued that in fact there were only two methods commonly used in molecular genetics, the Maxam-Gilbert and the Sanger methods, and that the other two mentioned in the essay were just variations on them. Thus, this carefully constructed essay struck my two students as a misrepresentation of DNA sequencing as they knew it and as potentially misleading for its implied audience of new genetics students. These two critical students, like the geodetic

scientist referred to earlier, expose a perhaps painful reality: that no matter how few courses our students have taken in their content areas, they may know much more about those areas than we do and hence may be capable of more informed response not only to the content but also to the content-dependent rhetorical strategies of discipline-specific student writing.

Despite the fact that all disciplinary discourse can be considered rhetorical (Shaughnessy, 1977; Bizzell, 1984), there are, at the same time, differences in such aspects as the way knowledge claims are presented and audience is perceived. In addition to McDonald, Bazerman (1981), Gilbert and Mulkay (1983), McCloskey (1983), Selzer (1983), Zuckerman and Merton (1971), and others have investigated some of the distinctive discourse features of various disciplines. Toulmin (1979) has not only identified similarities in the reasoning across disciplines but has also pointed out differences with respect to degrees of formality, precision, modes of resolution, and goals of argumentation. Our students may have already begun to internalize some of these disciplinary discourse features even after a brief period of study in their fields.

While peer response may not solve the problem of responding to discipline-specific student writing, teacher/student collaboration in response to papers may help. Teachers may be able to train their students to serve as peer reviewers who advise the author and the teacher. Such training could take a number of different forms. Teachers could show students actual

referee reports or peer reviews that they or their colleagues have received. Teachers and students together could read and discuss some of the literature on the use of peer review in the professions (see, for example, Cole, Rubin, & Cole ,1977; Mitroff & Chubin ,1979; Zuckerman & Merton, 1971). Myers'analysis (1985) of two biologists' attempts to publish their research could be especially enlightening for students (Swales, 1987). Myers notes that the most frequently stated reason for rejection of the biologists' manuscripts was that they were not suitable for the readers of the journals they were submitted to. Such evidence can clarify for students the function of peer review as well as emphasize the necessity of understanding audience expectations. Perhaps after learning about the purpose and practice of peer review, students will be ready to respond to the type of questionnaire, or guided critique form, that I used in my multi-class peer review project. Tailoring such questionnaires to each assignment should help students respond as reviewers of a fellow student's execution of that particular task (see appendices E & F for sample questionnaires designed for two assignments: a definition of a term from a content course and an interpretation of data collected or chosen by the student/author). Teachers might also organize group conferences for all students with the same major. Not only could these conferences be used to discuss solutions to problems more sketchily referred to in a critique-questionnaire both for the benefit of the students and the teacher, but they

could also function as prewriting sessions in which students could try out their ideas on each other.

If we are serious about preparing our advanced EAP composition students for full-fledged membership in their disciplinary discourse communities, we should welcome papers from them on topics that intellectually challenge them, the types of topics that they will be required to write about in their fields and that will place a more sophisticated set of demands on them than general or personal topics do. At the same time, however, we cannot be the diverse audiences of experts that our students will eventually have to address. Yet, if we form collaborative learning communities (Bruffee 1983, 1984) among and with our students, teaching them how to utilize their content-area knowledge as peer reviewers and learning from them how to help them put the composing strategies we know well to work in their fields, then we can begin to approximate the audiences that apprentice professionals want to reach and to become the respondents that advanced EAP students need.

REFERENCES

Alptekin, C. (1981). Sociopsychological and pedagogic considerations in L2 acquisition. TESOL Quarterly, 15, 275-284.

Bazerman, C. (1981). What written knowledge does: Three examples of academic discourse. Philosophy of Social Science, 11, 136-387.

Belcher, D. (1988, April). Teaching the rhetoric of academic discourse communities in the advanced ESL composition classroom. Paper presented at the 22nd Annual Conference of IATEFL, Edinburgh, Scotland.

Berkenkotter, C. (1984). Student writers and their sense of authority over texts. College Composition and Communication, 35, 312-319.

Bizzell, P. (1982). College composition: Initiation into the academic discourse community. Curriculum Inquiry, 12, 191-207.

Bizzell, P. (1984). William Perry and liberal education. College English, 46, 447-454.

Bruffee, K. A. (1973). Collaborative learning: Some practical models. College English, 34, 634-643.

Bruffee, K. A. (1983). Writing and reading as collaborative or social acts. In J. Hays et al. (Eds.), The Writer's Mind: Writing as a Mode of Thinking (pp. 159-169). Urbana, IL: NCTE.

Bruffee, K. A. (1984). Collaborative learning and the "Conversation of Mankind." College English, 46, 635-652.

Cole, S., Rubin, L, and Cole, J. (1977). Peer review and the support of science. Scientific American, 237, 34-41.

Eggington, W. G. (1987). Written academic discourse in Korean: Implications for effective communication. In U. Connor and R. B. Kaplan (Eds.), Writing Across Languages: Analysis of L2 Text (pp. 153-168). Reading, MA: Addison-Wesley.

Elbow, P. (1973). Writing Without Teachers. London: Oxford University Press.

Fahnestock, J. and Secor, M. (1982). A Rhetoric of Argument. New York: Random House.

Fish, S. (1980). Is There a Text in This Class?: The Authority of Interpretive Communities. Cambridge, MA: Harvard University Press.

Flynn, E. A. (1982). Freedom, restraint, and peer group interaction. Paper presented at the 33rd meeting of the Conference on College Composition and Communication. (ERIC Document ED 216 365)

Flynn, E. A. (1984). Students as readers of their classmates' writing: Some implications for peer critiquing. The Writing Instructor, 3, 120-128.

Gaies, S. J. (1985). Peer Involvement in Language Learning. Orlando, FL: Harcourt, Brace, Jovanovich.

Gebhardt, R. (1980). Teamwork and feedback: Broadening the base of collaborative writing. College English, 42, 69-74.

Gilbert, G. and Mulkay, M. (1984). Opening Pandora's Box: A Sociological Analysis of Scientists' Discourse. Cambridge, UK: University of Cambridge Press.

Hinds, J. (1987). Reader versus writer responsibility: A new typology. In U. Connor and R. B. Kaplan (Eds.), Writing Across Languages: Analysis of L2 Text (pp. 141-152). Reading, MA: Addison-Wesley.

Horowitz, D. M. (1986). What professors actually require: Academic tasks for the ESL classroom. TESOL Quarterly, 20, 445-462.

Law, J. and Williams, R. J. (1982). Putting facts together: A study of scientific persuasion. Social Studies of Science, 12, 535-558.

McCloskey, D. N. (1983). The rhetoric of economics. Journal of Economic Literature, 21, 481-517.

MacDonald, A. P. (1987). Problem definition in academic writing. College English, 49, 315-331.

Macrorie, K. (1970). Telling Writing. New York: Hayden.

Memring, D. and O'Hare, F. (1984). The Writer's Work. Englewood Cliffs, NJ: Prentice-Hall.

Mitroff, I. I. and Chubin, D. C. (1979). Peer review at the NSF: A dialectical policy analysis. Social Studies of Science, 9, 199-232.

Moffett, J. (1968). Teaching the Universe of Discourse. New York: Houghton Mifflin.

Myers, G. (1985). Texts as knowledge claims: The social construction of two biology articles. Social Studies of Science, 15, 593-630.

Newkirk, T. (1984). Direction and misdirection in peer response. College Composition and Communication, 35, 301-311.

Newkirk, T. (1984). How students read student papers. Written Communication, 1, 283-305.

Odell, L. (1985). Beyond the text: Relations between writing and social context. In L. Odell and D. Goswami (Eds.), Writing in Nonacademic Settings (pp. 249-280). New York: Guilford.

Ostler, S. (1980). Survey of academic needs for advanced ESL. TESOL Quarterly, 14, 489-502.

Partridge, K. L. (1981). A comparison of the effectiveness of peer vs. teacher evaluation for helping students of English as a second language to improve the quality of their written compositions. Unpublished master's thesis, University of Hawaii at Manoa.

Selzer, J. (1983). The composing processes of an engineer. College Composition and Communication, 34, 178-187.

Shaughnessy, M. (1977). Some needed research in writing. College Composition and Communication, 28, 317-320.

Shih, M. (1986). Content-based approaches to teaching academic writing. TESOL Quarterly, 20, 617-648.

Sommers, N. (1980). Revision strategies of student writers and experienced adult writers. College Composition and Communication. 31, 378-388.

Spack, R. (1988). Initiating students into the academic discourse community: How far should we go? TESOL Quarterly, 22, 29-51.

Swales, J. (1987). Utilizing the literatures in teaching the research paper. TESOL Quarterly, 21, 41-68.

Tedick, D. (1988). The effects of topic familiarity on the written compositions of international students. Proceedings of the Second Annual Research and Scholarly Activities Forum, The Ohio State University, Columbus, Ohio, 47-54.

Toulmin, S., Rieke, R. and Janik, A. (1979). An Introduction to Reasoning. New York: Macmillan.

Weimer, W. B. (1977). Science as a rhetorical transaction: Toward a nonjustificational conception of rhetoric. Philosophy and Rhetoric, 10, 1-29.

Witbeck, M. C. (1976). Peer correction procedures for intermediate and advanced ESL composition lessons. TESOL Quarterly, 10, 321-326.

Yearley, S. (1981). Textual persuasion: The role of social accounting in the construction of scientific arguments. Philosophy of the Social Sciences, 11, 409-435.

Zamel, V. (1982). Writing: The process of discovering meaning. TESOL Quarterly, 16, 195-209.

Zamel, V. (1987). Recent research on writing pedagogy. TESOL Quarterly, 21, 697-715.

Zuckerman, H. and Merton, R. K. (1971). Patterns of evaluation in science: Institutionalisation, structure, and functions of the referee system. Minerva: A Review of Science, Learning and Policy, 9, 66-100.

FACULTY QUESTIONNAIRE

1. Do you consider the topic well chosen, i.e., focused enough and of current interest in your field?

2. Does the student appear familiar enough with the literature on the topic? Has s/he overlooked any important publications?

3. Is the overall format appropriate for the subject matter covered?

4. Should certain sections of the paper be lengthened or shortened?

5. In general would you say this topic is covered in the kind of depth you would expect from a master's or doctoral candidate?

6. Has the student mastered the terminology of his field well enough? Are there any specific terms that you feel are incorrectly used?

7. Are there passages where the meaning is greatly obscured because of grammar, word choice, punctuation or other problems? (I will be paying close attention to this aspect of their paper and am particularly interested in what strikes you, an expert in the student's field, as unclear.)

8. Are the references cited in a manner that conforms to the current conventions in your field? Would a different citation system better suit the student's needs?

Your name_____
Your field of study_____ # of paper evaluated_____

Peer Review
Comparison/Evaluation Essay

Feel free to make any marks or comments that you wish to on the photocopy. It would be especially helpful if you would underline any passages that strike you as unclear.

1. Do you consider the items compared to be well chosen? Are these terms, theories, instruments, etc. of interest to people in your field?

   Does it seem reasonable to you to compare these things, or are they so different, like apples and oranges, that nothing much can be learned by comparing them?

2. Is the purpose of this particular comparison made clear to you?

   What is the purpose?

3. Can you identify the intended audience of this paper? Who is it?

   Do you feel the author appropriately addresses this audience? If not, what makes you think so?

4. Does the overall comparison appear to be well balanced, i.e., approximately the same type and amount of discussion devoted to each thing compared?

   If not, does there seem to be a good reason for the imbalance? What is it?

5. Can you find an organizing principle at work in this comparison? What is it — whole to whole, part to part, similarities/differences, or something else? Would you have organized this paper differently?

6. Do you feel that this paper is coherent, i.e., that the overall flow is logical and smooth? Please point out any places where there appears to be a lack of logical connection.

7. Do you think the author handles the terminology of his/her field well? Are there any terms that seem to be incorrectly used or that would require further definition even for a specialized audience?

8. Keeping in mind the limited length of this paper, would you say that this comparison is developed with the kind of detail and insight you would expect from a fellow graduate student in your field?

9. Is this paper convincing? Can you accept its conclusion(s)? If not, why not?

Appendix C

Student Essay

DNA Sequencing

DNA, the major universal genetic material, consists of four kinds of nucleotides linked by 3-5 phosphodiester bonds randomly. Since the hereditary information is stored in the arrangement of the four different kinds of nucleotides in a DNA molecule, it is very important to know how to sequence the DNA. Up to now, at least four methods have been available: plus and minus (first developed by Sanger and Coulson, 1975), chemical breakage (designed by Maxam and Gilbert, 1977), dideoxy inhibitor method (invented by Sanger et al., 1977), and fluorescent automatic sequencing (newly introduced by Smith et al,, 1986). These methods will be compared in terms of theoretical basis, accuracy, cost, efficiency and finally potential hazardousness to researchers.

First, all of the sequencing methods make use of a similar procedure — to produce a whole set of either radioactive-labeled or fluorescent-labeled fragments terminating at a specific nucleotide. The length of each fragment stands for the position of a base in a DNA fragment from a particular starting point. However, the ways to obtain a set of fragments differ from each other. For plus and minus, only one specific labeled nucleotide is added to the original reaction mixture containing the four nucleotides. The fragments produced by this plus system are terminated with the specific nucleotide added. In the minus system, however, all the other three bases are present while the specific one is absent. All fragments will end in a position which is before the absent nucleotide. In the dideoxy inhibitor method, four different dideoxy inhibitors specific to the four kinds of nucleotides are used to preferentially inhibit the enzymatic catalyzed reaction to produce four sets of fragments terminating at the four specific nucleotides respectively. Unlike these two methods, the method used by Maxam and Gilbert employs specific chemicals to break a DNA chain at a certain position to generate a set of fragments ending with the specific bases. In comparison with the preceding methods, the fourth method uses four different colored fluorophores to label the specific nucleotides in a DNA.

In terms of accuracy, the dideoxy inhibitor method may be the best one. The chemical breakage is also a good way to do sequencing. That is because the limitation in accuracy of both methods is due to the analyzing systems (gel), not to the methods themselves. The plus and minus is the worst in accuracy because of its theoretical problems. Being the most newly developed method, the fluorescent sequencing is theoretically accurate, but in practice not as accurate as supposed.

Third, the cost difference between the fluorescent and other methods is a significant factor for general molecular biology laboratories simply because fluorophores are much cheaper than the radioactive materials, which are necessary in the other three methods.

Another important aspect to be considered is the time or efficiency factor. As the first method available, the plus and minus is not only laborious but also inefficient. It needs several reaction systems and a lot of purification procedures. Another element greatly reducing the efficiency comes from the secondary structures of a DNA fragment. The chemical method can accurately sequence 100-300 bases each time, which is similar to the dideoxy method. All of these three ways, however, will become more laborious and more impractical when a medium-sized gene is sequenced. For instance, a gene containing $2^* 10^4$ nucleotides needs to be completely sequenced 20 times, which is a heavy job for a researcher. This problem is now partially overcome by the newly introduced fluorescent method in which a DNA fragment can be automatically sequenced. Although the method needs some improvement in its accuracy, the automatic DNA sequencing dream has now at least partly come true.

Finally, since the radioactive materials are very dangerous to human beings, it is important to avoid using these materials and to stock a minimum amount. Unlike the other methods which use the hazardous radioactive material, the fluorescent method uses fluorophores which are not harmful to human bodies and environment. From the view of the potential hazardousness, the fluorescent method is the best.

Up to now, chemical and dideoxy methods have been the most commonly used methods in the DNA sequencing technology. However, these two methods are now being challenged by the newly developed, much cheaper, potentially accurate, automatic, and harmless fluorescent method. In order to make the automatic DNA sequencing dream come true completely, much work must be done in order to overcome the low accuracy of the fluorescent method.

Appendix D

Student Essay

Mineral Processing Equipment

In order to choose a kind of equipment for size analysis and classification in our mineral processing laboratory, a few pieces of laboratory equipment, Bahco Micro-particle Classifier (Bahco), Cyclosizer, and Walther Air Classifier, are briefly described as follows. The information for those pieces of equipment is from Laboratory Equipment, Catalog 86-1, Gilson Company, Inc.

Bacho Micro-particle Classifier

The Bahco Micro-particle Classifier (Bahco) is a type of classifiers. It can be used in classification of minerals and other particle systems. The size range of the Bahco is between 1 to 60 microns. Its capacity is relatively low, being 5 to 20 grams each time.

In mineral processing processes, some samples suffer oxidation in aqueous solutions. This oxidation usually causes analysis errors of characterization and changes of properties in the subsequent processes. In order to minimize oxidation for some samples, the preparation of these samples should be conducted in dry-conditions. The Bahco is a combination of air elutriator and air centrifuge. The medium for this equipment (or instrument) is only air thus the classification is a dry-conditioned process, therefore the Bahco is particularly suitable for the samples being easily oxidized.

The Bahco is portable and only weighs 52.3 kg. It is also usually used in the measurements of the emission of industrial dusts for the control of airborne.

Two models are listed in the catalog. They are SA-160 and SA-160F and each of them costs $10,500.

Cyclosizer Analyzer

This Cyclosizer Analyzer is such a equipment as can be used for both classification and size analysis. It is usually used for the separation of the subseived samples into five particle-sized cuts in the Stokesian diameter range of 8 to 50 microns under standard conditions. This equipment is usually specifically employed in the mineral processing laboratories.

This equipment consists of five stages of hydrocyclones. Under standard conditions (for the minerals with the specific gravity 2.65 and spherical shapes), the size cut-points are 44, 33, 23, 15 and 11 microns respectively. For other minerals and/or the minerals being nonspherical shapes, the size cut-points can be converted by using the calibration tables and curves as the attached manual.

The capacity of the Cyclosizer Analysis is about 100 grams each time. The preparation of sample is very simple and only takes about 10 to 30 minutes. It is also easy to control the system during the operation; and the measurements are quite accurate.

There are two models of Cyclosizer Analyzer such as SA-150 and SA-150F. Both have the same prices as $23,200 each.

Walther Air Classifier

Like the Bahco, The Walther Air Classifier (Walther) is also a type of air-medium classifiers. It is usually used in the laboratories for small size classification. Its cut points of classification sizes range from 3 to 60 microns.

The Walther is a convenient piece of equipment for testing, and also accurate in classification with a sharp cut point. Its capacity reaches about 30 kg/hr.

The performance of the Walther depends on several factors such as specific gravity of the samples, feed rate, quantities of the material near in the size to the cut points, and so on.

The Walther has two models such as SA-140 and SA-140F. Each of them costs $22,760.

From the characteristics of the three types of classifiers as the above described, we can find that the Cyclosizer Analyzer is the most suitable one for our lab, because of: (a) its usage only in classification but also in size analysis; (b) easy to control; (c) relatively high capacity, typically suitable for our lab tests; and (d) more size cutpoints, i.e. more classification products, which is able to develop the size distribution of the tested sample. Also, because the samples we usually used do not suffer much oxidation, it is not necessary to choose the other two air-medium classifiers. Besides, the Cyclosizer Analyzer is a good equipment for undergraduate student lab studies. Therefore, I would like to recommend to purchase this equipment.

Reference

Laboratory Equipment, Catalog 86-1, p51-53, Gilson Company, Inc.

Peer Review
Data Interpretation

Your Name _____
Author's Name _____

DRAFT #2

1. What is your field of study?

2. Do you have any familiarity with the data discussed in this paper?

3. Does there appear to be a good reason for analyzing the data presented here? Could you briefly state the reason? (Hint: The thesis statement should reveal the author's purpose.)

4. Is the data clearly presented? Do you feel you need a chart or some other type of illustration in order to understand the data?

5. Does the paper overwhelm you with too much data? Or, is there not enough data to support the assertions being made?

Where exactly do you feel that there should be more or perhaps less data (paragraph #, sentence #)?

6. Do you think the author entirely comprehends his/her data? What makes you think s/he does or does not?

7. Does the organization of this paper (e.g., classification, causal analysis, comparison/contrast) help you understand and appreciate the significance of the data?

   If not, how would you have organized it?

8. Are there any terms used in this paper that need to be defined? If so, what are they?

9. Does the paper need a longer or a different type of conclusion (restatement of thesis, summary, discussion of limitations of data or of implications)?